

REMARKS

1. In response to the Office Action mailed March 15, 2006, Applicants respectfully request reconsideration. Claims 18-26~~7~~ and 29-40 were previously presented for examination in this application. By the foregoing Amendment, claims 18-21, 29, 30, 32 and 33 have been amended. No claims have been added, and no claims have been cancelled. Thus, upon entry of this paper, claims 18-26 and 29-40 will be pending in this application. Of these 21 claims, two (2) claims (claims 18 and 29) are independent. These amendments are believed not to introduce new matter and their entry is respectfully requested. Based upon the above Amendment and following Remarks, Applicants respectfully request that all outstanding objections and rejections, be reconsidered, and that they be withdrawn.

2. Support for the amendments to claim 18 is found in originally filed claim 19, as well as elsewhere throughout the specification, drawings and claims. Support for the amendments to claim 29 is found in originally filed claim 30, as well as elsewhere throughout the specification, drawings and claims. No new matter has been added.

Art of Record

3. Applicants acknowledge receipt of form PTO-892 identifying additional references made of record by the Examiner.

Foreign Priority

4. Applicants thank Examiner for acknowledgment of foreign priority under 35 U.S.C. § 119(a)-(d) and receipt of the certified copy.

Drawings

5. Applicants thank Examiner for indicating that the drawings filed on January 12, 2006 and July 26, 2004 have been accepted.

Claim Rejections – 35 U.S.C. § 102(e)/35 U.S.C. § 103(a)

6. Claims 18, 29 and 38-40 are rejected under 35 U.S.C. § 102(e) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over U.S. Publication No. 2003/0109903 to Berrang, *et al.* (Berrang). This rejection is respectfully obviated by the amendments to independent claims 18 and 29.

7. To reject a claim under Section 102(e), the prior art reference must teach every claim limitation. (See MPEP § 2131.). Alternatively, to establish a *prima face* case of obviousness, every element must be shown in the references, either alone or in combination. (See MPEP § 706.02(j) & 2143.).

8. Independent claim 18, as amended, recites “a virtual wire assembly comprising: a substantially electrically-nonconductive substrate hermetically sealed within an aperture of said casing; and hermetic feedthroughs each comprising ***a doped conductive region*** in said substantially electrically-nonconductive substrate, wherein said doped conductive region extends transversely through said substantially electrically-nonconductive substrate to form a ***conductive pathway with accessible surfaces at opposing ends***, and through which electrical stimulation channels are routed to provide electrical stimulation of auditory nerve cells.” (See, Applicants’ Claim 18, above; emphasis added.). Likewise, independent claim 29, as amended, recites “a virtual wire assembly comprising: a substantially electrically-nonconductive substrate hermetically sealed within said aperture; and hermetic feedthroughs each comprising ***a doped conductive region*** in said substantially electrically-nonconductive substrate, wherein said doped conductive region extends transversely through said substantially electrically-nonconductive substrate to form a ***conductive pathway with accessible surfaces at opposing ends***, and through which electrical signals can be routed.” (See, Applicants’ Claim 29, above; emphasis added.).

9. In rejecting independent claims 18 and 29, the Office Action states that Berrang discloses that the “enclosure contains an aperture that contains a non-conducting insert with a plurality of passageways that are *hermetically sealed* and wired to provide stimulation therapy.” (See Office Action, page 3, para. 3; emphasis added.). Berrang states that “an electronically conducting metal or alloy ... can be used to *hermetically fill and seal* the plurality of passageways in insert 6.” (See Berrang, para. 50; emphasis added.). The Office Action has not and cannot cite any portion of Berrang for teaching a doped conductive region, as claimed by independent claims 18 and 19. Instead Berrang only teaches filling a non-conducting insert with a metal or alloy. In addition, the Office Action has not and cannot cite any portion of Berrang for teaching conductive pathway with accessible surfaces at opposing ends. FIG. 16 of Berrang clearly shows in detail that both ends of the conductive pathways are not accessible due to the sealing layers placed on one side. Further Berrang continues to state the necessity for a hermetical seal because “if any conducting salts or body fluids act to delaminated the bonded interface, via capillary action of body fluids, then the electrically conducting alloy 8 in the passageways in insert 6 would electrically short, such a shorting representing a device failure.” (See Berrang, para. 52.). Finally, the Office Action admits that Berrang does not teach “the conductive regions that extend transversely.” (See Office Action, page 5, para. 5.). Therefore, for at least these reasons the rejection of independent claims 18 and 29 under 35 U.S.C. § 102(e), or in the alternative under 35 U.S.C. § 103(a), is improper for failing to show every element of independent claims 18 and 29 in the prior art, and thus, the rejection should be withdrawn.

10. With respect to dependent claims 39 and 40, the Office Action states that Berrang teaches a “second substrate with conductive regions that are aligned with the first conductive region.” (See Office Action, page 4, para. 3.). However, Berrang never discloses a “second substrate” in FIGS. 5-7 as alleged by the Office Action, but instead shows a plurality of sealing layers. The remaining drawings and disclosure of Berrang also do not show a second substrate. Applicants request that the Examiner indicate the specific portion of Berrang which shows a second substrate with conductive regions that are aligned with the first conductive region. In addition, dependent claims 39 and 40 depend directly or indirectly from independent claim 18 and contain all the limitations of claim 18 and are allowable over Berrang for the same reasons as claim 18 in addition to this further reason.

Dependent Claim Rejections – 35 U.S.C. § 103(a)

11. Dependent claims 19, 23 and 30 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Berrang in view of US Patent No. 5,046,242 to Kuzma (“Kuzma”). Without addressing the lack of a motivation to combine the reference, this rejection is respectfully traversed with respect to the claims as currently presented.

12. Dependent claims 19 and 23 depend directly or indirectly from independent claim 18 and contain all the limitations of claim 18 and are allowable over Berrang for the same reasons as claim 18. Dependent claim 30 depends directly from independent claim 29 and contains all the limitations of claim 29 and is allowable over Berrang for the same reasons as claim 29. Further, the Office Action admits that Berrang does not teach “the conductive regions that extend transversely and are electrically isolated from one another.” (*See* Office Action, page 5, para. 5.). Kuzma is only cited for teaching that “the conductive regions that extend transversely and are electrically isolated from one another.” (*See* Office Action, page 5, para. 5.). However, the Office Action has not shown and cannot show that Kuzma teaches a doped conductive regions as recited by independent claims 18 and 29. Therefore, Kuzma fails to remedy the deficiencies in Berrang, which also does not teach a doped conductive region.

13. Dependent claims 20-22 and 31-32 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Berrang in view of Kuzma as applied to claims 19 and 30 above, and further in view of US Patent No. 6,230,057 to Chow *et al* (“Chow”). This rejection is respectfully traversed with respect to the claims as currently presented because the Office Action has failed to establish a *prima facie* case of obviousness by failing to provide a motivation to combine the references along with the failure to teach every element of claims.

14. The Office Action asserts that Berrang and Kuzma teach all the elements of claims 19 and 30. In combining Berrang and Kuzma, the Office Action states that “it would be obvious to one skilled in the art at the time the invention was disclosed to combine the prosthesis taught by Berrang et al. with the plurality of conductive pathways as taught by Kuzma in order to achieve a *perfect hermetic seal* and a plurality of feedthroughs.” (See, Office Action, page 5; emphasis added). The Office Action states that the combination of Berrang and Kuzma still fails to “teach that the substrate is a semiconductor composed of silicon that is a n-type or p-type doped material.” (See, Office Action, page 6.). To supply the admitted deficiency in Berrang and Kuzma, the Office Action turns to a third reference, Chow, for teaching “an n-type and p-type substrate of silicon wafer.” (See, Office Action, page 6.). In making the combination, the Office Action states that “it would be obvious to use a semiconductor because of its *resistive properties* and silicon is a common semiconductor material.” (See, Office Action, page 6; emphasis added.). In addition, the Office Action states that “it would have been obvious to one skilled in the art at the time the invention was made to combine the device taught by Berrang et al. in view of Kuzma with the n-type or p-type doped silicon semiconductor because of its *resistivity*.” (See, Office Action, page 6; emphasis added).

15. The Examiner has not provided proper support for the assertion that one of ordinary skill, without having the benefit of Applicants’ novel teachings before them, would have been motivated to combine the teachings of the three cited references. In doing so, the Examiner failed to articulate a suggestion or motivation to combine the references and thus failed to establish a *prima facie* case of obviousness as required by law and under MPEP Sections 706.02(j) & 2143. (See, *In re Rouffet*, 149 F.3d 1350, 1357 (Fed. Cir. 1998) (“To prevent the use of hindsight based on the invention to defeat patentability of the invention, this court requires the examiner to show a motivation to combine the references that create the case of obviousness.”).). Sufficient evidential support for the motivation to combine must be shown in the prior art suggesting a combination of references. (See, *In re Lee*, 277 F.3d 1338, 1343 (Fed. Cir. 2002); see also, *In re Kotzab*, 217 F.3d 1365, 1371 (Fed. Cir. 2000) (“[P]articular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed.”).).

16. First, the statement that it is obvious to combine Berrang in view of Kuzma to achieve a “perfect hermetic seal” fails to support a motivation to combine. Applicants note that a “perfect hermetic seal” is a hermetic seal and an imperfect hermetic seal is not a hermetic seal. This bald assertion of a generalized advantage is not a substitute for the absence of objective reasons, sufficient evidence and reasoned findings. In relying on this general advantage, the Examiner has not objectively explained the motivation to combine Berrang in view of Kuzma, and thus based on Federal Circuit precedent its can be reasonable assumed the Examiner selected the references with the assistance of hindsight. (*See, In re Rouffet*, 149 F.3d 1350, 1358 (Fed. Cir. 1998).). The Federal Circuit has repeated stated that the use of hindsight must be guarded against by having the Examiner provide sufficient evidence to support the motivation. (*See, e.g., In re Rouffet*, 149 F.3d 1350 (Fed. Cir. 1998); *In re Dembiczak*, 175 F.3d 994 (Fed. Cir. 1999).). Therefore, without sufficient objective evidence the Examiner fails to establish a proper *prima facie* case of obviousness to combine Berrang in view of Kuzma.

17. Second, the statements to combine Berrang in view of Kuzma and in further view of Chow because of “resistivity” are equally lacking in evidentiary support. The Office Action admits that the combination of Berrang and Kuzma fails to “teach that the substrate is a semiconductor.” (*See*, Office Action, page 6.). Thus, the Office Actions statement that “it is noted that while the semiconductor is implanted in the retina and not the cochlea, the references are analogous art because both semiconductors are implanted within the body.” (*See*, Office Action, page 6.). Since, the Office Action admitted that the Berrang and Kuzma do not teach a semiconductor it can only be assumed that the Office Action is referring to Applicants’ specification when stating that “both semiconductors are implanted within the body.” Thus, the Examiner is using Applicants’ specification to support the motivation to combine. Such use of Applicants’ specification is clearly not proper evidence to support the motivation to combine. (*See In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999)). In addition, the Office Action cites nothing in Berrang or Kuzma or any other source that one would be motivated to use a semiconductor, let alone a semiconductor used in a retinal implant as taught by Chow. The Examiner has not objectively explained the motivation to combine Berrang in view of Kuzma and in further view of Chow, and thus based on Federal Circuit precedent its can be reasonable assumed the Examiner selected the references with the assistance of hindsight. (*See, In re Rouffet*, 149 F.3d 1350, 1358 (Fed. Cir. 1998).). The Federal Circuit has repeated stated that the use of hindsight must be guarded against by having the Examiner provide sufficient evidence to support the motivation. (*See, e.g., In re Rouffet*, 149 F.3d 1350 (Fed. Cir. 1998); *In re Dembiczak*, 175 F.3d 994 (Fed. Cir. 1999).). As such, since the Examiner has failed to provide any basis, Applicants request the Examiner support these assertions with an affidavit under 37 C.F.R. § 1.104(d)(2). (*See*, MPEP § 2144.04.). Therefore, without sufficient objective evidence the Examiner fails to establish a proper *prima facie* case of obviousness to combine Berrang in view of Kuzma and in further view of Chow.

18. Even assuming that there was a proper motivation to combine Berrang in view of Kuzma and in further view of Chow, which there is not, dependent claims 20-22 depend indirectly from independent claim 18 and contain all the limitations of claim 18 and are allowable over Berrang for the same reasons as claim 18. Dependent claims 31 and 32 depend indirectly from independent claim 29 and contain all the limitations of claim 29 and are allowable over Berrang for the same reasons as claim 29. Chow fails to remedy the deficiencies of Berrang in failing to teach a doped conductive region and a conductive pathway with accessible surfaces at opposing ends. Instead Chow only devices a PiN or NiP device having a P+ tub or N+ tub separated by an intrinsic layer to respond to light stimulation. (*See*, Chow, Col. 10, lines 1-29, and FIG. 9.).

19. Claims 24-26 and 33 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Berrang in view of Kuzma as applied to claim 23 above, and further in view of US Publication No. 2001/0050837 to Stevenson, *et al.*, (“Stevenson”). Without addressing the lack of a motivation to combine the reference, this rejection is respectfully traversed with respect to the claims as currently presented.

20. Dependent claims 24-26 depend indirectly from independent claim 18 and contain all the limitations of claim 18 and are allowable over Berrang for the same reasons as claim 18. Dependent claim 33 depends indirectly from independent claim 29 and contains all the limitations of claim 29 and is allowable over Berrang for the same reasons as claim 29. Further, The Office Action admits that Berrang and Kuzma do not teach “the terminal, material, or wire respectively.” (*See* Office Action, page 6, para. 7.). Stevenson is only cited for teaching “the terminal... and wire.” (*See* Office Action, page 6, para. 7.). The Office Action has not shown that Stevenson teaches or suggests a “hermetic feedthrough” as claimed by claims 18 and 29, fails to remedy the deficiency in Berrang which also does not teach a “hermetic feedthrough.”

21. Claims 34-36 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Berrang in view of Kuzma and Stevenson as applied to claim 26 above, and further in view of US Patent No. 5,412,748 to Furuyama, *et al.* (“Furuyama”). Without addressing the lack of a motivation to combine the reference, this rejection is respectfully traversed with respect to the claims as currently presented.

22. Dependent claims 34-36 depend indirectly from independent claim 18 and contain all the limitations of claim 18 and are allowable over Berrang for the same reasons as claim 18. Further, The Office Action admits that Berrang, Kuzma and Stevenson do not teach “a portion of the wire located within a depression in the substrate.” (*See* Office Action, page 7, para. 8.). Furuyama is only cited for teaching “a wire that has a portion secured within a depression in the substrate.” (*See* Office Action, page 7, para. 8.). The Office Action has not shown that Furuyama teaches or suggests a “hermetic feedthrough” as claimed by claim 18, fails to remedy the deficiency in Berrang which also does not teach a “hermetic feedthrough.”

23. Claim 37 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Berrang in view of Kuzma as applied to claim 23 above, and further in view of US Patent No. 6,501,170 to Dickety, *et al.*, (“Dickety”). Without addressing the lack of a motivation to combine the reference, this rejection is respectfully traversed with respect to the claims as currently presented.

24. Dependent claim 37 depends indirectly from independent claim 18 and contains all the limitations of claim 18 and is allowable over Berrang for the same reasons as claim 18. Further, The Office Action admits that Berrang, Kuzma and Dickety do not teach “a ball grid array.” (*See* Office Action, page 8, para. 9.). Dickety is only cited for teaching “a ball grid array.” (*See* Office Action, page 8, para. 9.). The Office Action has not shown that Dickety teaches or suggests a “hermetic feedthrough” as claimed by claim 18, fails to remedy the deficiency in Berrang which also does not teach a “hermetic feedthrough.”

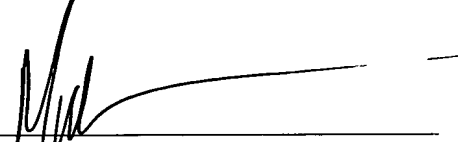
Dependent Claims

25. The dependent claims incorporate all of the subject matter of their respective independent claims and add additional subject matter which makes them a fortiori and independently patentable over the art of record. Accordingly, Applicant respectfully requests that the outstanding rejections of the dependent claims be reconsidered and withdrawn.

Conclusion

26. In view of the foregoing, it is respectfully submitted that this application is in condition for allowance and favorable action is respectfully solicited.

Respectfully submitted,



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